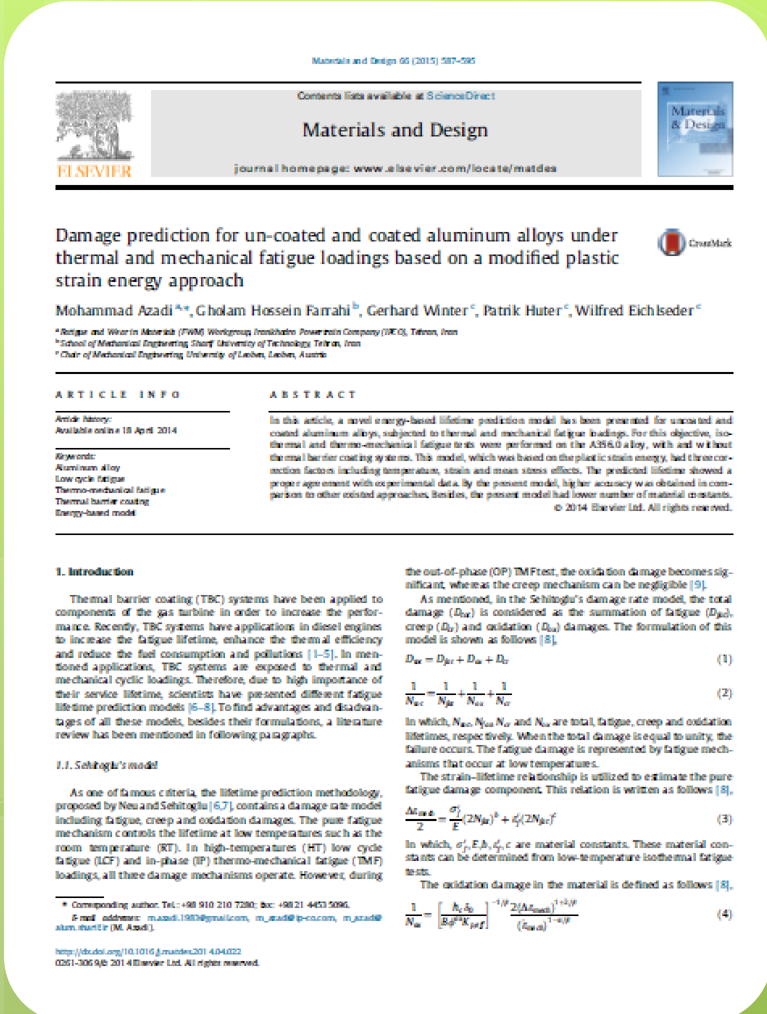

Materials and Design 66 (2015) 587–595

Contents lists available at ScienceDirect

Materials and Design

journal homepage: www.elsevier.com/locate/matdes

ELSEVIER

Damage prediction for un-coated and coated aluminum alloys under thermal and mechanical fatigue loadings based on a modified plastic strain energy approach

CrossMark

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[c] Chair of Mechanical Engineering, University of Leoben, Leoben, Austria

ARTICLE INFO

Article history:
Available online 18 April 2014

Keywords:
Aluminum alloy
Low cycle fatigue
Thermo-mechanical fatigue
Thermal barrier coating
Energy-based model

ABSTRACT

In this article, a novel energy-based lifetime prediction model has been presented for uncoated and coated aluminum alloys, subjected to thermal and mechanical fatigue loadings. For this objective, isothermal and thermo-mechanical fatigue tests were performed on the A356.0 alloy, with and without thermal barrier coating systems. This model, which was based on the plastic strain energy, had three correction factors including temperature, strain and mean stress effects. The predicted lifetime showed a proper agreement with experimental data. By the present model, higher accuracy was obtained in comparison to other existed approaches. Besides, the present model had lower number of material constants.

1. Introduction

Thermal barrier coating (TBC) systems have been applied to components of the gas turbine in order to increase the performance. Recently, TBC systems have applications in diesel engines to increase the fatigue lifetime, enhance the thermal efficiency and reduce the fuel consumption and pollutions [1–5]. In mentioned applications, TBC systems are exposed to thermal and mechanical cyclic loadings. Therefore, due to high importance of their service lifetime, scientists have presented different fatigue lifetime prediction models [6–8]. To find advantages and disadvantages of all these models, besides their formulations, a literature review has been mentioned in following paragraphs.

1.1. Sehitoglu's model

As one of famous criteria, the lifetime prediction methodology, proposed by Neu and Sehitoglu [6,7], contains a damage rate model including fatigue, creep and oxidation damages. The pure fatigue mechanism controls the lifetime at low temperatures such as the room temperature (RT). In high-temperatures (HT) low cycle fatigue (LCF) and in-phase (IP) thermo-mechanical fatigue (TMF) loadings, all three damage mechanisms operate. However, during the out-of-phase (OP) TMF test, the oxidation damage becomes significant, whereas the creep mechanism can be negligible [9].

As mentioned, in the Sehitoglu's damage rate model, the total damage (D_{tot}) is considered as the summation of fatigue (D_{fat}), creep (D_{cr}) and oxidation (D_{ox}) damages. The formulation of this model is shown as follows [8],

$$D_{tot} = D_{fat} + D_{ox} + D_{cr} \quad (1)$$

$$\frac{1}{N_{tot}} = \frac{1}{N_{fat}} + \frac{1}{N_{ox}} + \frac{1}{N_{cr}} \quad (2)$$

In which, N_{tot}, N_{fat}, N_{cr} and N_{ox} are total, fatigue, creep and oxidation lifetimes, respectively. When the total damage is equal to unity, the failure occurs. The fatigue damage is represented by fatigue mechanisms that occur at low temperatures.

The strain–lifetime relationship is utilized to estimate the pure fatigue damage component. This relation is written as follows [8],

$$\frac{\Delta\varepsilon_{mech}}{2} = \frac{\sigma'_f}{E}(2N_{fat})^b + \varepsilon'_f(2N_{fat})^c \quad (3)$$

In which, σ'_f, E, b, ε'_f, c are material constants. These material constants can be determined from low-temperature isothermal fatigue tests.

The oxidation damage in the material is defined as follows [8],

$$\frac{1}{N_{ox}} = \left[\frac{h_c\delta_0}{B\phi^{ox}K_{peff}}\right]^{-1/\beta} \frac{2(\Delta\varepsilon_{mech})^{1+2/\beta}}{(\dot{\varepsilon}_{mech})^{1-\alpha/\beta}} \quad (4)$$

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http://dx.doi.org/10.1016/j.matdes.2014.04.022

دانشگاه سمنان

مقاله نویسی (ساختار مقالات)

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معرفی ارائه کننده

Mohammad Azadi

FOLLOWING

Assistant Professor, Faculty of Mechanical Engineering, Semnan University
Verified email at semnan.ac.ir - Homepage

Fatigue Nanocomposite Coating Additive Manufacturing Design of Experiments

TITLE	CITED BY	YEAR
Thermo-mechanical stress analysis of thermal barrier coating system considering thickness and roughness effects A Moridi, M Azadi, GH Farrahi Surface and Coatings Technology 243, 91-99	75	2014
Heat treatment effect on thermo-mechanical fatigue and low cycle fatigue behaviors of A356. 0 aluminum alloy M Azadi, MM Shirazabad Materials & Design 45, 279-285	51	2013

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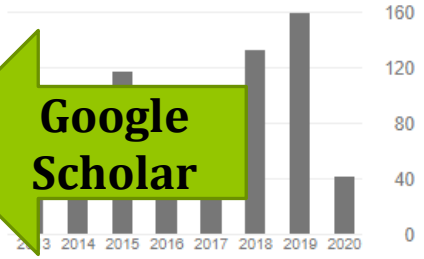

Google Scholar

Azadi, Mohammad

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Affiliation(s):
Semnan University, Semnan, Iran View more

Other name formats: Azadi, M.

Subject area: Engineering Materials Science Physics and Astronomy Chemistry Mathematics Chemical Engineering Computer Science Multidisciplinary

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h-index:
14
View *h*-graph

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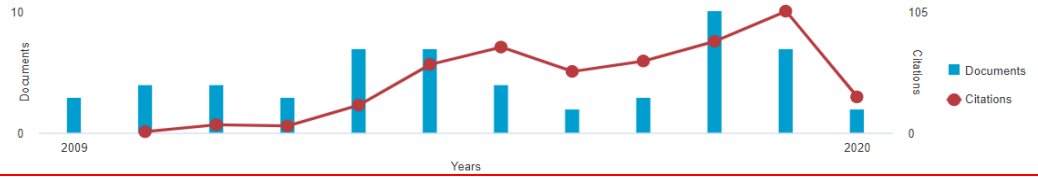

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Web of Science Group

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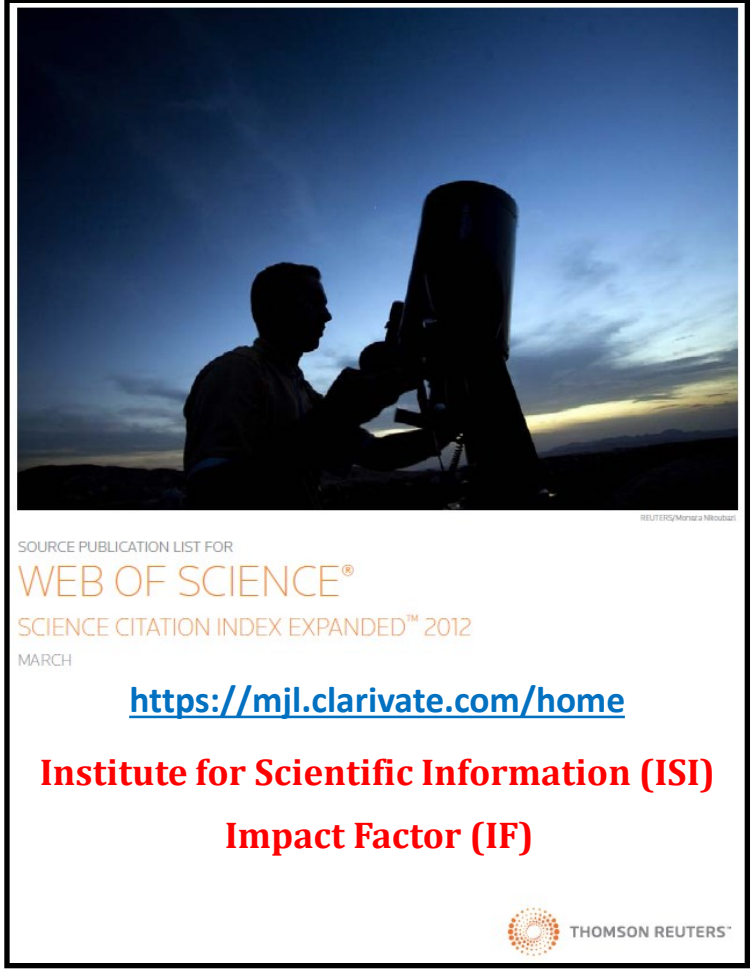

سایت های مهم

- Some websites
  - Quality (Q1 to Q4)
    - https://www.scimagojr.com/

  - ISC Journals and Quality
    - https://jcr.isc.gov.ir/main.aspx

  - Fake Journals and Publications
    - https://scholarlyoa.com/publishers/

  - Journal Abbreviations
    - https://woodward.library.ubc.ca/research-help/journal-abbreviations/

  - Researchers Documents
    - https://publons.com/about/home

  - Highly-cited Researchers
    - https://clarivate.com/webofsciencegroup/solutions/researcher-recognition/

OLD Presentation

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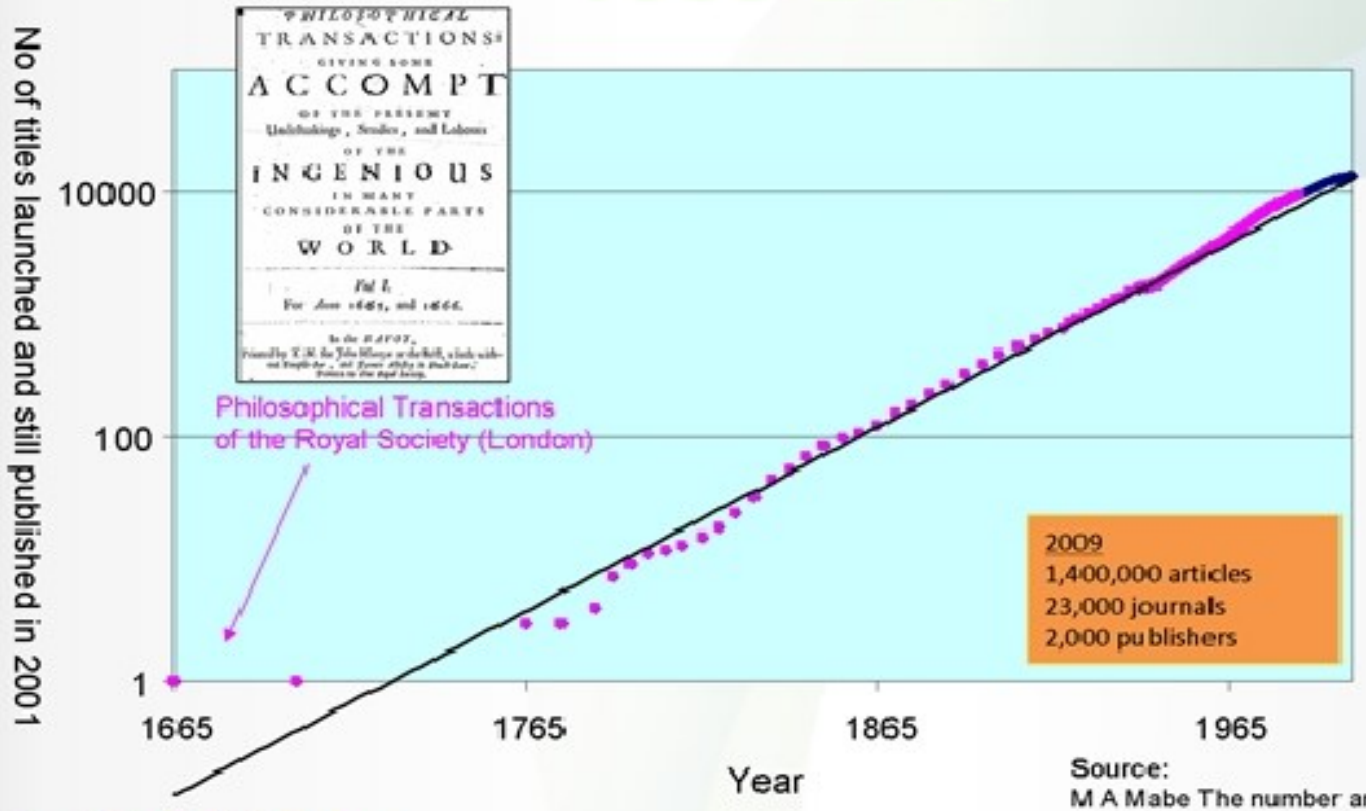
Part #01

Ref.: Elsevier, 2012

Ref.: Elsevier

Ref.: Elsevier

Peer-Reviewed Journal Growth 1665-2001



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M A Mabe The number and growth of journals *Serials* 16(2).191-7, 2003

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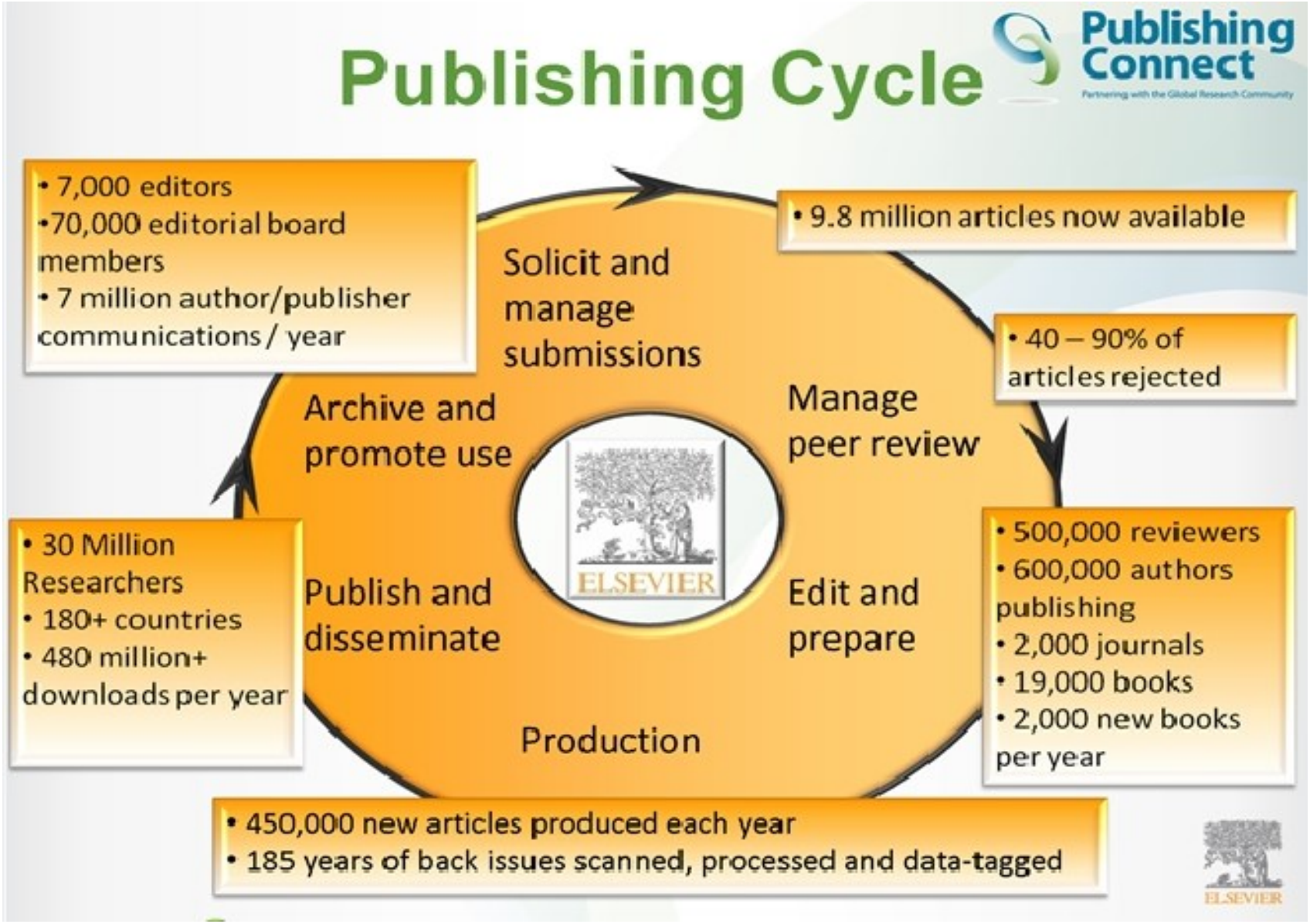

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Determine if you are ready to publish

You should consider publishing if you have information that advances understanding in a specific research field

This could be in the form of:

- Presenting new, original results or methods
- Rationalizing, refining, or reinterpreting published results
- Reviewing or summarizing a particular subject or field

If you are ready to publish, a strong manuscript is what is needed next

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What is a strong manuscript?

- Has a clear, useful, and exciting message
- Presented and constructed in a logical manner
- Reviewers and editors can grasp the significance easily

Editors and reviewers are all busy people – make things easy to save their time

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Types of manuscripts

- Full articles/Original articles
- Short communications/letters
- Review papers/perspectives

  – Self-evaluate your work: Is it sufficient for a full article? Or are your results so thrilling that they need to be shown as soon as possible?

  – Ask your supervisor and colleagues for advice on manuscript type. Sometimes outsiders see things more clearly than you.

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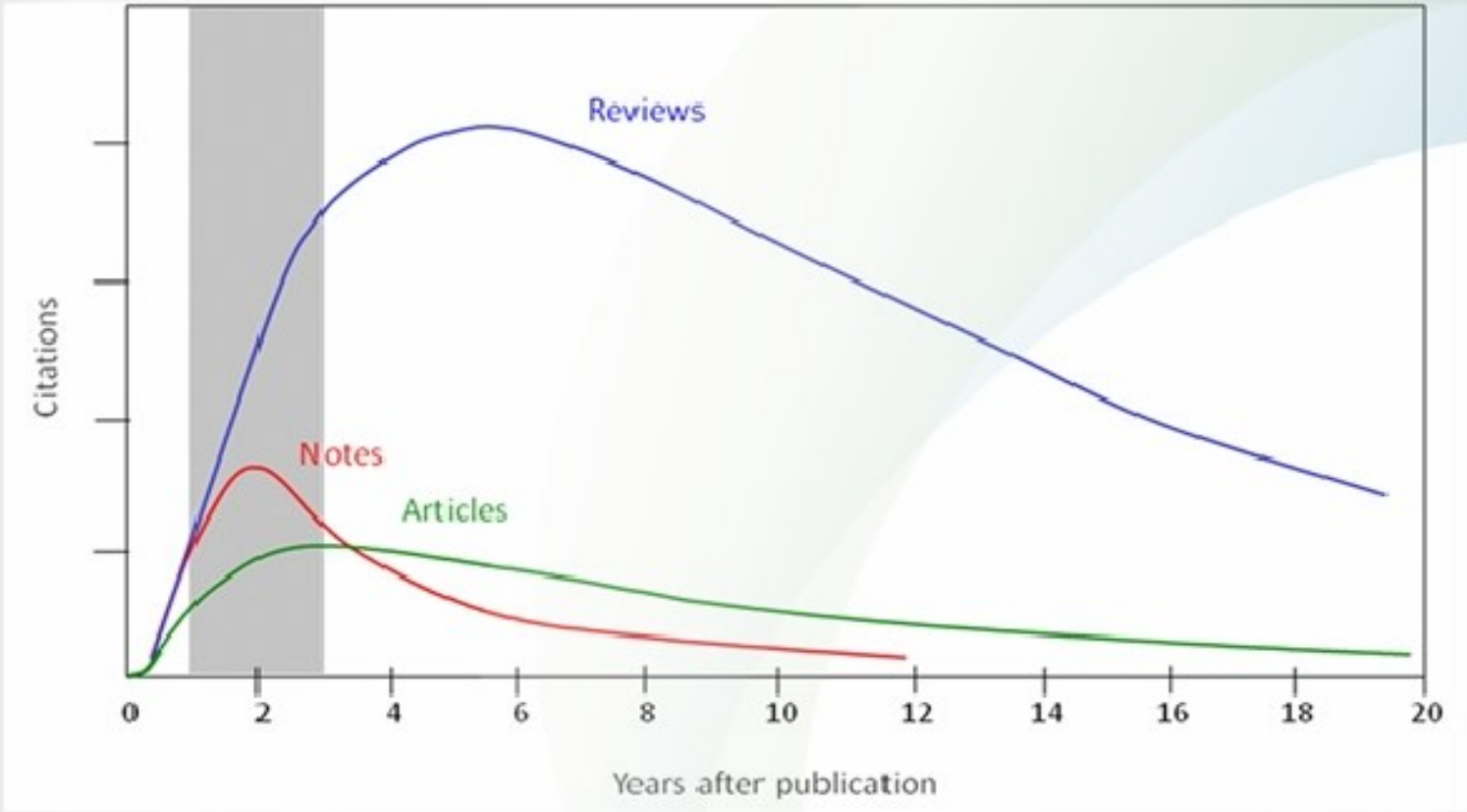
Citations per article type



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Impact Factor

The Impact Factor tells you how many times the papers in one journal are cited on AVERAGE.

It does NOT give an indication about a single (your) paper.

Some papers are heavily cited, others are never cited (even in journals with high Impact Factor).

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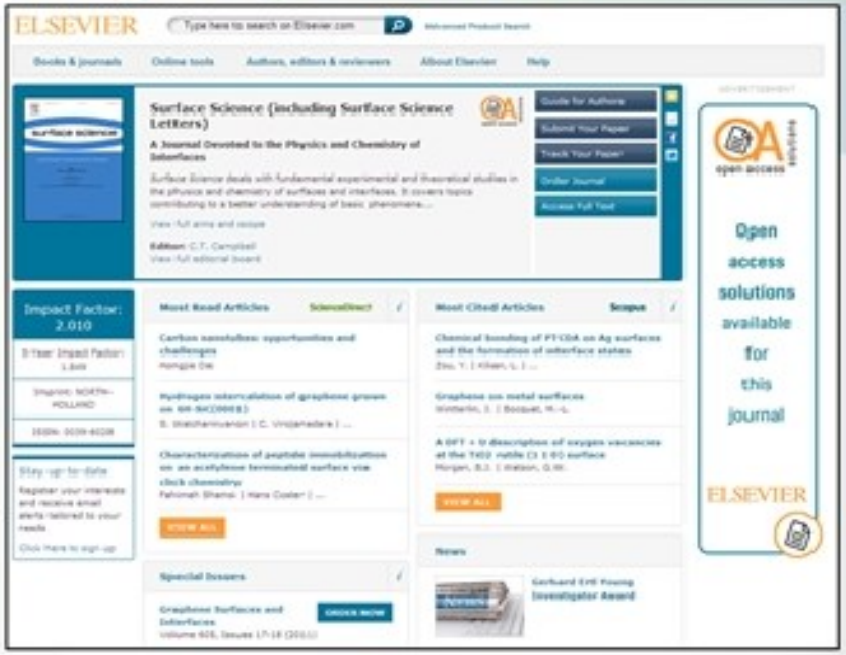
Choosing the right journal

Investigate all candidate journals on Elsevier.com to find out:

- Aims and scope
- Accepted types of articles
- Readership
- Current hot topics
  - go through the abstracts of recent publications



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Choosing the right journal cont..

- Ask for help from your supervisor or colleagues
  - The supervisor (who is often a co-author) has co-responsibility for your work.
- DO NOT gamble by submitting your manuscript to more than one journal at a time.
  - International ethics standards prohibit multiple/simultaneous submissions, and editors *WILL* find out! (see also our webcast on publishing ethics www.elsevier.com/editorsupdate).

TIP: Articles in your references will likely lead you to the right journal.

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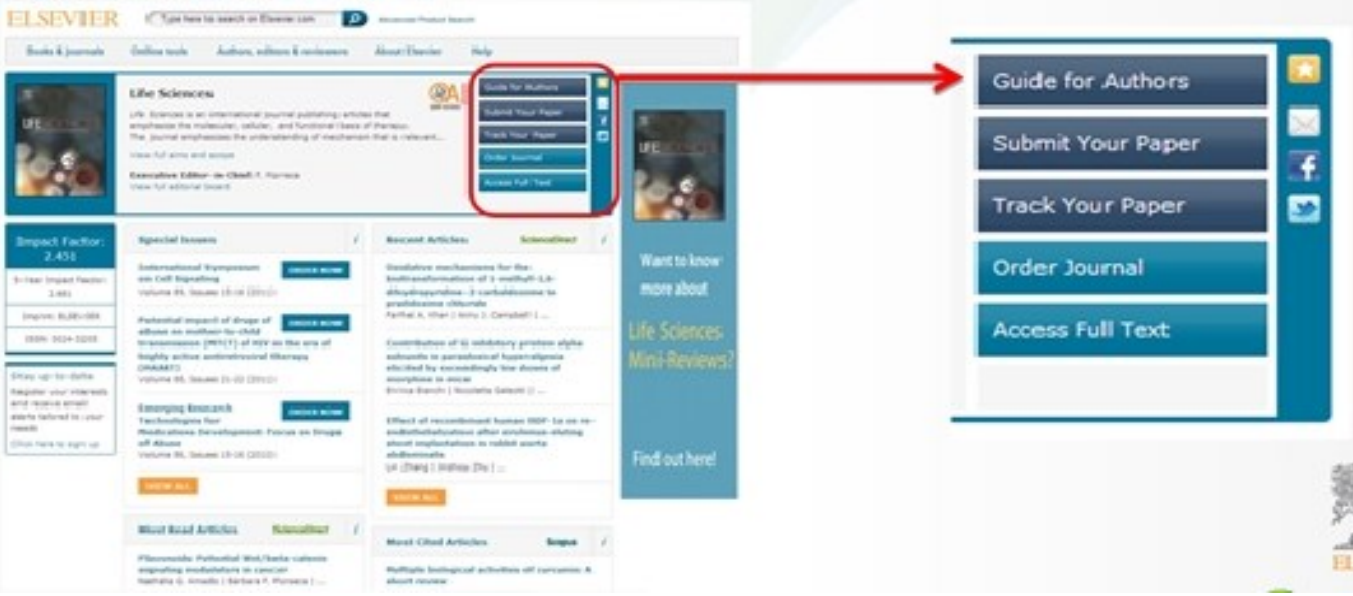
Read the '*Guide for Authors*'!

- You can find the Guide for Authors on the journal homepage on Elsevier.com
- Stick to the Guide for Authors in your manuscript, *even in the first draft* (text layout, nomenclature, figures & tables, references etc.). In the end it will save you time, and also the editor's.
- Editors (and reviewers) do not like wasting time on poorly prepared manuscripts.



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Summary – What steps do I need to take before I write my paper?

- Determine if you are ready to publish
- Decide on the type of manuscript
- Choose the target journal
- Check the Guide for Authors

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Thank you

For further information please visit:

www.elsevier.com/authors

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Part #02

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Publishing Connect
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Why is language important?

- Without proper language, the editor and reviewers will not understand what you mean
- Poor language will lead to rejection of your paper
- English language should be used throughout the entire manuscript, including figures, charts, graphs, and photos.

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Do publishers correct language?

- No. It is the author's responsibility to make sure his paper is in its best possible form when submitted for publication

- However:
  - Publishers often provide resources for authors who are less familiar with the conventions of international journals. Please check your publishers' author website for more information.
  - Some publishers may perform technical screening prior to peer review.
  - Visit http://webshop.elsevier.com for translation and language editing services.

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Manuscript Language – Overview

Write with clarity, objectivity, accuracy, and brevity.

- Key to successful manuscript writing is to be alert to common errors:
  - Sentence construction
  - Incorrect tenses
  - Inaccurate grammar
  - Mixing languages

Check the Guide for Authors of the target journal for any language specifications

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Manuscript Language – Sentences

- Write direct and short sentences
- One idea or piece of information per sentence is sufficient
- Avoid multiple statements in one sentence

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Manuscript Language – Tenses

- Present tense for known facts and hypotheses:
  "The average life of a honey bee is 6 weeks"
- Past tense for experiments you have conducted:
  "All the honey bees were maintained in an environment with a consistent temperature of 23 degrees centigrade…"
- Past tense when you describe the results of an experiment:
  "The average life span of bees in our contained environment was 8 weeks…"

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Manuscript Language – Grammar

- Use active voice to shorten sentences
  - Passive voice: "It has been found that there had been…"
  - Active voice: "We found that…"
  - Passive voice: "carbon dioxide was consumed by the plant…"
  - Active voice: "…the plant consumed carbon dioxide.."
- Avoid abbreviations: "it's", "weren't", "hasn't"
  - Never use them in scientific writing
  - Only use abbreviations for units of measure or established scientific abbreviations, e.g. DNA

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Manuscript Language – Grammar

- Minimize use of adverbs: “However”, “In addition”, “Moreover”
- Eliminate redundant phrases
- Double-check unfamiliar words or phrases

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Summary – How can I ensure I am using proper manuscript language?

- Proper manuscript language is important so that editors and reviewers can easily understand your messages
- Refer to the journal's Guide for Authors for specifications
- Check that your paper has short sentences, correct tenses, correct grammar, and is all in English
- Have a native English speaker check your manuscript or use a language editing service

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Part #03

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Publishing Connect
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General structure of a research article

- Title
- Abstract
- Keywords

Make them easy for indexing and searching! (informative, attractive, effective)

- Main text (IMRAD)
  - Introduction
  - Methods
  - Results
  - And
  - Discussions

Journal space is not unlimited.

Make your article as concise as possible.

- Conclusions
- Acknowledgements
- References
- Supplementary Data

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Authorship

General principles for who is listed first

- First Author
  - Conducts and/or supervises the data generation and analysis and the proper presentation and interpretation of the results
  - Puts paper together and submits the paper to journal
- Corresponding author
  - The first author or a senior author from the institution

Avoid

- Ghost Authorship
  – leaving out authors who should be included
- Gift Authorship
  – including authors who did not contribute significantly
- Spelling names: Be consistent!

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Title

- A good title should contain the *fewest* possible words that *adequately* describe the content of a paper.
- Effective titles
  - Identify the main issue of the paper
  - Begin with the subject of the paper
  - Are accurate, unambiguous, specific, and complete
  - Are as short as possible
- Articles with short, catchy titles are often better cited
- Do not contain rarely-used abbreviations

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Keywords

Used by indexing and abstracting services

- They are the labels of your manuscript.
- Use only established abbreviations (e.g. DNA)
- Check the 'Guide for Authors'

Article Title	Keywords
"Silo music and silo quake: granular flow-induced vibration"	Silo music, Silo quake, stick-slip flow, resonance, creep, granular discharge
"An experimental study on evacuated tube solar collector using supercritical CO2"	Solar collector; Supercritical CO2; Solar energy; Solar thermal utilization

5

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Abstract

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… is freely available in electronic abstracting & indexing services [PubMed, Medline, Embase, SciVerse Scopus, ….]

- This is the **advertisement of your article**. Make it interesting, and easy to be understood without reading the whole article.
- You must be **accurate** and **specific**!
- A clear abstract will strongly influence whether or not your work is further considered.
- Keep it as **brief** as possible!!!

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Introduction

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Provide context to convince readers that you clearly know why your work is useful

- Be brief
- Clearly address the following:
  - What is the problem?
  - Are there any existing solutions?
  - Which solution is the best?
  - What is its main limitation?
  - What do you hope to achieve?
- Try to be consistent with the nature of the journal

7

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Methods

Describe how the problem was studied

- Include detailed information
- Do not describe previously published procedures
- Identify the equipment and describe materials used

8

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Ethics Committee approval

- Experiments on humans or animals must follow applicable ethics standards
  - e.g. most recent version of the Helsinki Declaration and/or relevant (local, national, international) animal experimentation guidelines
- Approval of the local ethics committee is required, and should be specified in the manuscript
- Editors can make their own decisions as to whether the experiments were done in an ethically acceptable manner
  - Sometimes local ethics approvals are below internationally accepted standards

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Results – what have you found?

- Tell a clear and easy-to-understand story. **RED THREAD**
  - Be structured (sub-headings)
- The following should be included:
  - The main findings
    - Thus not all findings (Add Supplementary Materials for data of secondary importance)
    - Findings from experiments described in the Methods section
  - Highlight findings that differ from findings in previous publications, and unexpected findings
  - Results of the statistical analysis

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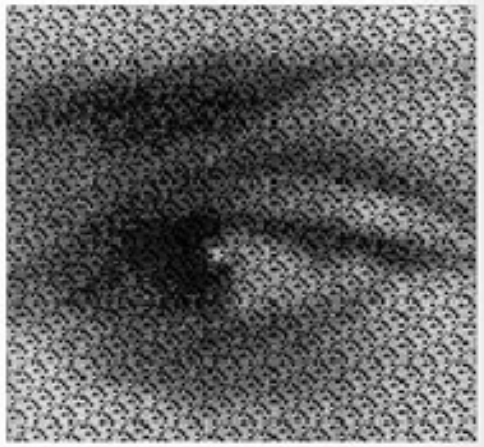
Results – Figures and tables

- Illustrations are critical, because
  - Figures and tables are the most efficient way to present results and;
  - Results are the driving force of the publication
- Captions and legends must be detailed enough to make figures and tables self-explanatory
- No duplication of results described in text or other illustrations



"One Picture is Worth a Thousand Words"
Sue Hanauer (1968)

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Discussion

What the results mean

- Most important section
- Make the Discussion correspond to the Results
- You need to compare published results with yours

12

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Conclusion

How the work advances the field from the present state of knowledge

- Should be clear
- Justify your work in the research field
- Suggest future experiments

13

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Acknowledgments

Ensures those who helped in the research are recognised

Include individuals who have assisted with your study, including:

- Advisors
- Financial supporters
- Proofreaders
- Typists
- Suppliers who may have given materials

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References

Cite the main scientific publications on which your work is based

- Do not use too many references
- Always ensure you have fully absorbed material you are referencing and do not just rely on checking excerpts or isolated sentences
- Avoid excessive self-citations
- Avoid excessive citations of publications from the same region
- Conform strictly to the style given in the Guide for Authors

15

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Summary – How do I build up my article properly?

- Title
- Abstract
- Keywords
- Main text (IMRAD)
  - Introduction
  - Methods
  - Results
  - And
  - Discussions
- Conclusion
- Acknowledgement
- References
- Supporting Materials

- Structure your article properly
- Make sure each section of the paper fulfills its purpose clearly and concisely

16

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NEW Presentation

Ref.: Elsevier, 2020

Researcher Academy

Part #NEW

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https://researcheracademy.elsevier.com/interactive-course/display/825/393

پایان

با تشکر از دغدغه شما برای یادگیری

با آرزوی موفقیت در مسیری که انتخاب کرده اید!؟

(با هدف گذاری...؟ و با برنامه ریزی برای رسیدن به هدف...؟)

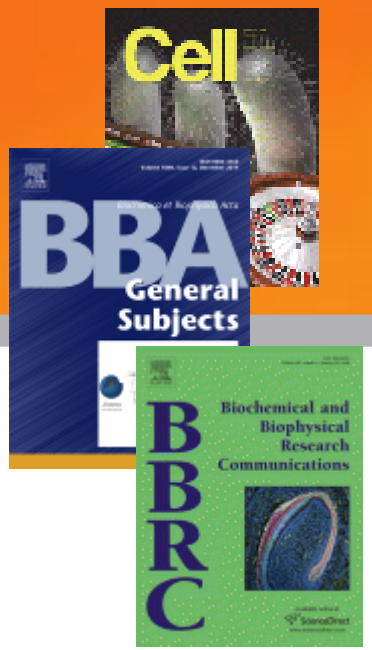
Email: m.azadi.1983@gmail.com

and publish

How to Write a Good Research Paper

From title to references

From submission to acceptance



Presented by:
Dolors Alsina, Ph.D.
Executive Publisher
Elsevier, Amsterdam

Shanghai, China
November 2014

ORGANIZER
SIAIS
ShanghaiTech
University

ELSEVIER

Outline

- **General introduction to publishing**
- **How to write and publish great papers**
  - Before you begin
  - Select your audience
  - The article structure
  - The review and editorial process
- **What not to do... (author responsibilities)**

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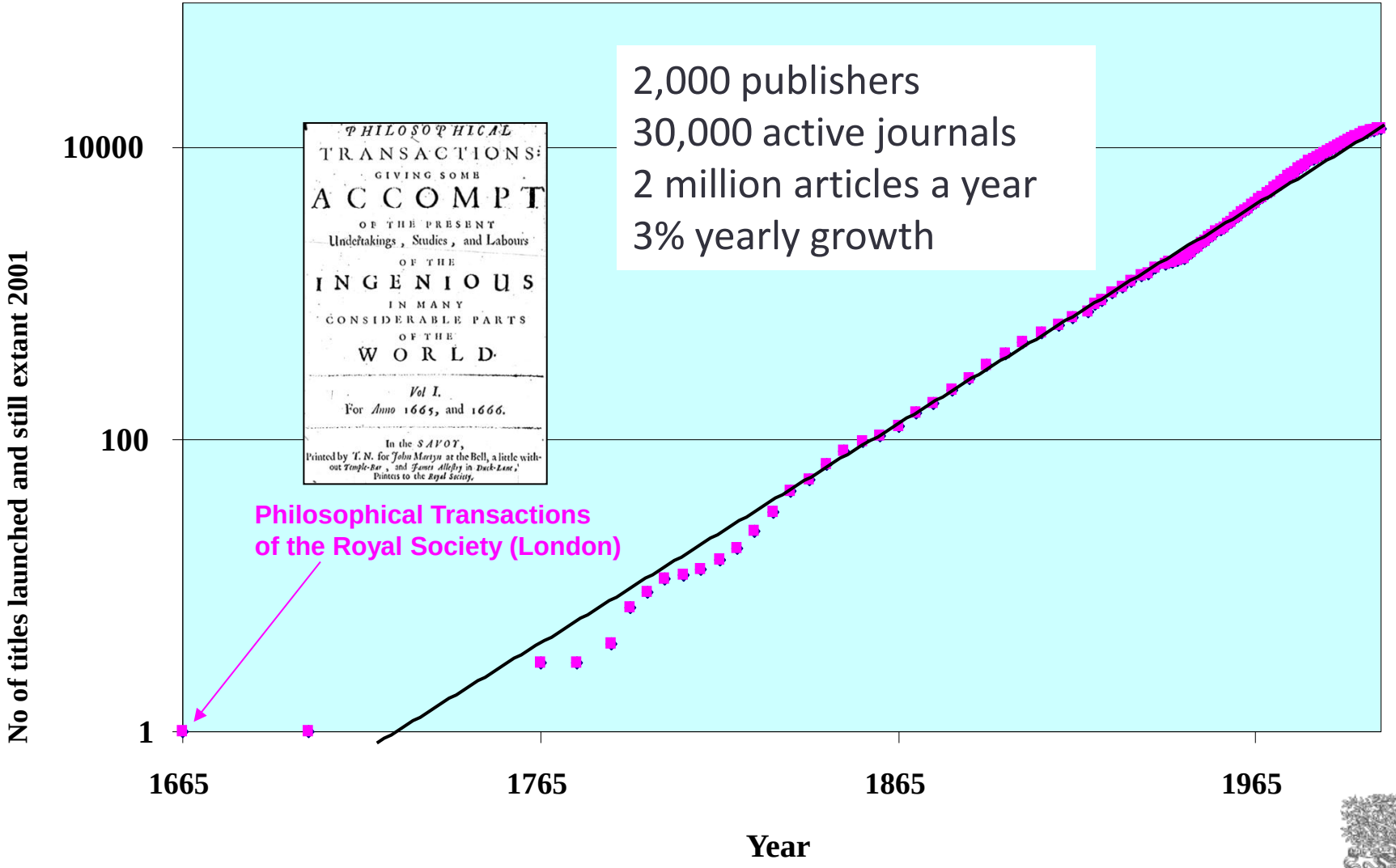
Peer-reviewed Journal Growth 1665-2010



Source: M A Mabe The number and growth of journals, *Serials* 16(2).191-7, 2003

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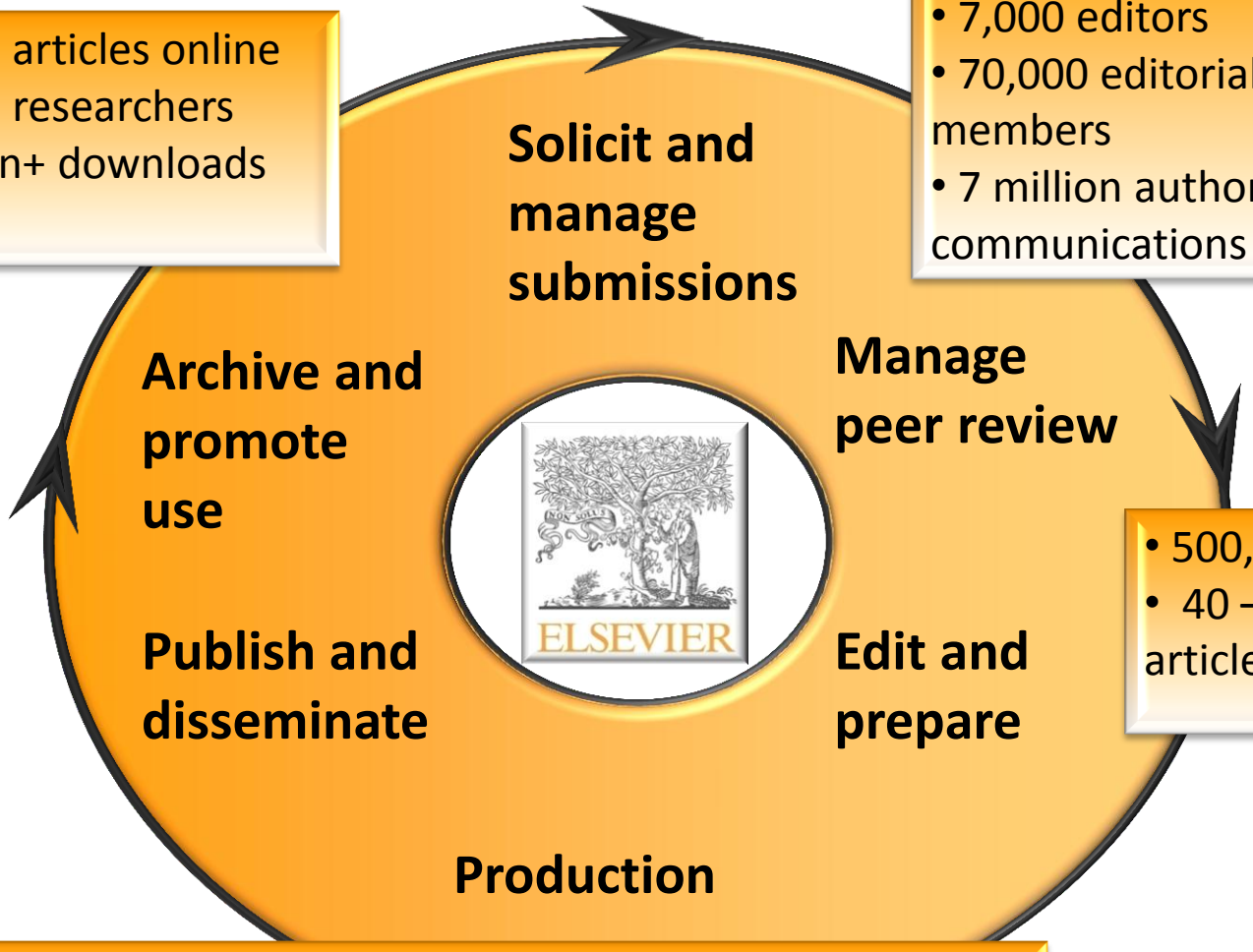
The Elsevier Publishing Cycle

- 10 Million articles online
- 30 Million researchers
- 480 million+ downloads per year

- 2,000 journals
- 7,000 editors
- 70,000 editorial board members
- 7 million author/publisher communications / year



- 500,000 reviewers
- 40 – 90% of articles rejected

- 450,000 new articles produced each year
- 185 years of back issues scanned, processed and data-tagged

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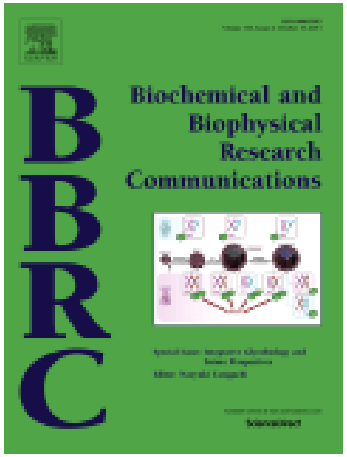
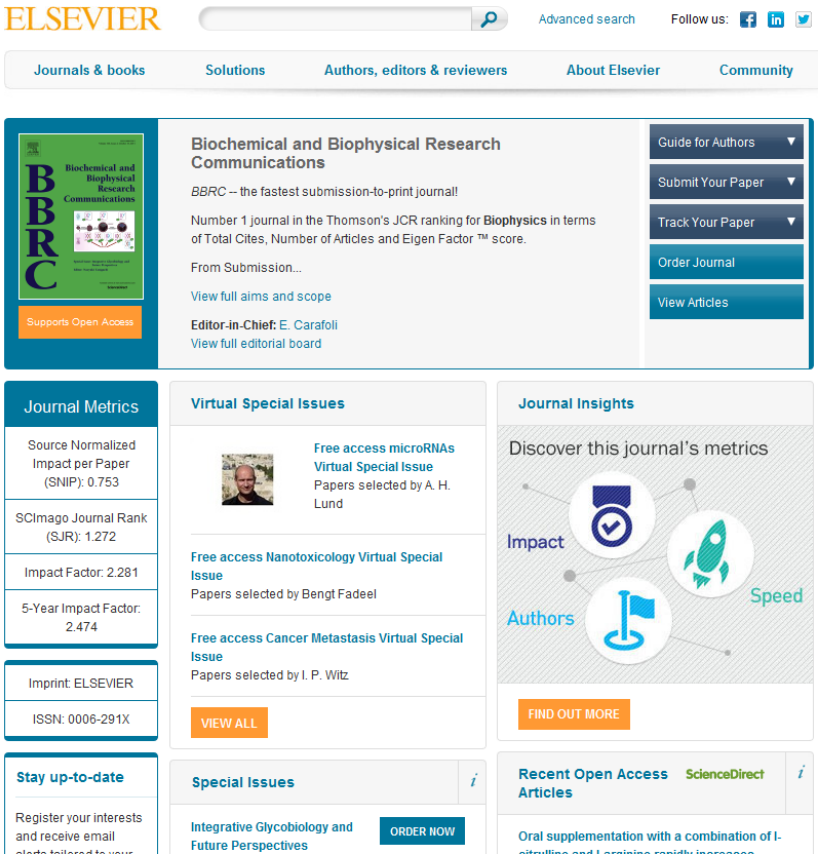
Example: BBRC





- 8,000 mss submitted per year
- 25 % accepted
- 29 Editors
- 10 days from submission to decision
- 3 weeks from submission to online publication
- 78,500 + article citations in 2013
- 4 mln Full Text Article downloads in 2013

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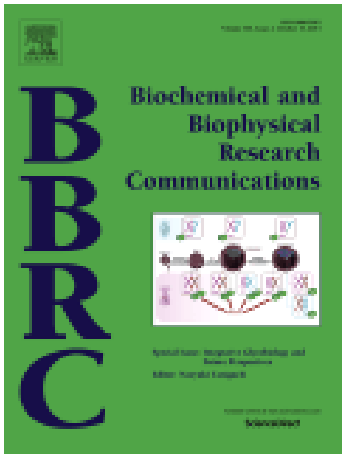
The people behind the journal BBRC



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How to Write and publish a Good Research Paper

Before you start

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Always keep in mind that …

…. your published papers, as a permanent record of your research, and your passport to your community !

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What are your personal reasons for publishing?

However, editors, reviewers, and the research community don't consider these reasons when assessing your work.

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What to publish

What to publish:

- New and original results or methods that **advance** the **knowledge** and understanding in a certain scientific field
- Reviews or summaries of particular subject or field

Do NOT consider to publish:

- Results with lack of scientific interest
- Outdated work
- Duplication of work already published
- Incorrect data or conclusions not supported by data

You need a STRONG manuscript to present your contributions to the scientific community

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A strong manuscript

- Good **CONTENT**
  - novel, useful, and exciting
- Good **PRESENTATION**
  - Clear presented and logically constructed
- Reviewers and editors are able to grasp the scientific significance **easily**

Before writing you should gather key information

1. **Find out what topics are exciting**
   - most downloaded, e.g. http://top25.sciencedirect.com/
   - most cited, e.g. http://scopus.com/
   - most shared, e.g. http://www.altmetric.com/

Scopus

Altmetric

2. **Find the trends of your subject area**
   - Keep informed of advances in the field through journal alerts
   - PubMed, for example, shows number of papers per keyword per year of publication

3. **Evaluate which journal is right for your manuscript**
   - Impact Factor
   - SNIP & SJR (www.journalmetrics.com)
   - *h*-Index
   - Compare journals (Scopus)

SJR SCImago Journal & Country Rank

4. **Find out more about the journals**
   - Who are the editors?
   - Guide for authors

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How to Write and publish a Good Research Paper

Select your audience and choose the right journal

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Select the best journal for submission

Getting a research paper published can be a challenge.

Risks that come from submitting a paper to a journal that's not the right fit:

- Rejection
- Adding months to publication
- Slowing career progress

Select the best journal for submission

- Look at **your references** – these will help you narrow your choices.
- Use the **Journal Finder Tool** (elsevier.com/authors)
  - Helps inexperienced authors to select the correct journals
  - Helps authors working in multidisciplinary fields identify possible journals
  - Highlights journals that offer open-access options

Find a journal match for your abstract by clicking on the blue 'Start matching' button above.

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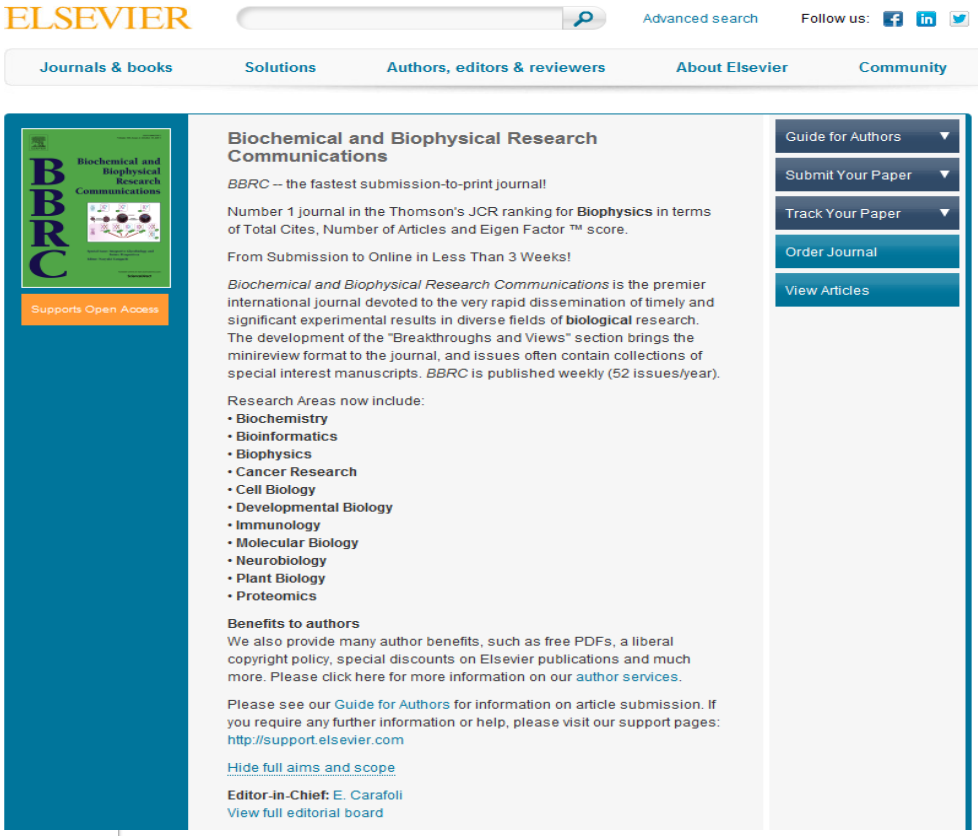
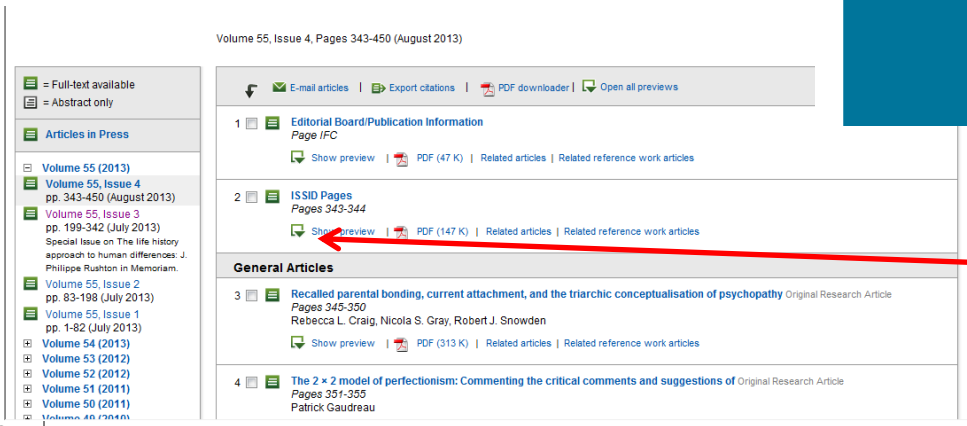
Select the best journal for submission

Investigate all candidate journals to find out

- Aims and scope
- Accepted types of articles
- Readership
- Current topics
  - go through the abstracts of recent publications





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What is the Impact Factor (IF)?

$$\text{2013 IF calculation:} \quad \frac{\text{Citations 2013 to publications 2011 \& 2012}}{\text{\# of publications 2011 \& 2012}}$$

$$\frac{\text{600 citations}}{\text{140 + 160 articles}} = 2$$

Be aware that the Impact Factor:

- Tells you how often the papers in a journal are cited on AVERAGE
- It does NOT give an indication about a single (your) paper
- Varies considerably per scientific discipline

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Select the best journal for submission

- Ask help from your supervisor and colleagues
  - Your supervisor (who is often a co-author) has at least co-responsibility for your work
- Make sure **all co-authors** agree to this list
- **DO NOT gamble** by submitting your manuscript to more than one journal at a time
  - International ethics standards prohibit multiple/simultaneous submissions, and editors DO find out! (Trust us, they DO!)

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Select the best journal for submission

Do not just “descend the stairs”

Top journals

Nature, Science, Lancet, NEJM, ...

Field-specific top journals

Other field-specific journals

National journals

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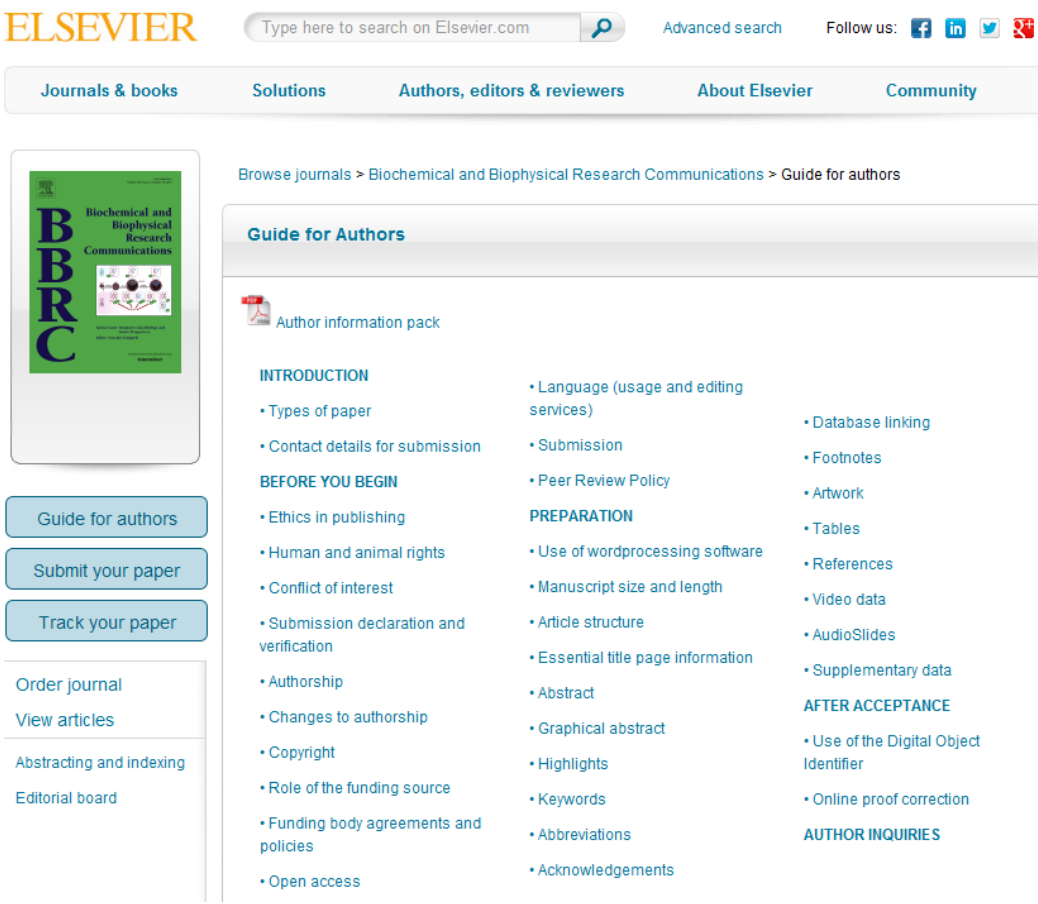
Read the ‘Guide for Authors’ – Again and again!

- Stick to the GfA in your manuscript, even in the first draft .
  In the end it will save you time, and also the editor’s.

- Editors (and reviewers) do not like wasting time on poorly prepared manuscripts. It is a sign of disrespect.



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How to Write and publish a Good Research Paper

The language

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Why Is Language Important?

Save your editor and reviewers the trouble of guessing what you mean

Complaint from an editor:

"[This] paper fell well below my threshold. I refuse to spend time trying to understand what the author is trying to say. Besides, I really want to send a message that authors can't submit a substandard paper to us and expect us to fix it. My rule of thumb is that if there are more than 6 grammatical errors in the abstract, then I don't waste my time carefully reading the rest."

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Scientific Language – Overview

Write with clarity, objectivity, accuracy, and brevity.

Key to successful scientific writing is to be alert for common errors:

- Sentence construction
- Incorrect tenses
- Inaccurate grammar
- Spelling mistakes

Language Editing Services :
http://webshop.elsevier.com/languageservices/languageediting

Scientific Language – Sentences

- Write direct and short sentences – more professional looking
- One idea or piece of information per sentence is sufficient
- Avoid multiple statements in one sentence – they are confusing to the reader.

An example of what NOT to do:

"*If it is the case, intravenous administration should result in that emulsion has higher intravenous administration retention concentration, but which is not in accordance with the result, and therefore the more rational interpretation should be that SLN with mean diameter of 46nm is greatly different from emulsion with mean diameter of 65 nm in entering tumor, namely, it is probably difficult for emulsion to enter and exit from tumor blood vessel as freely as SLN, which may be caused by the fact that the tumor blood vessel aperture is smaller.*"

How to Write and publish a Good Research Paper

The article structure

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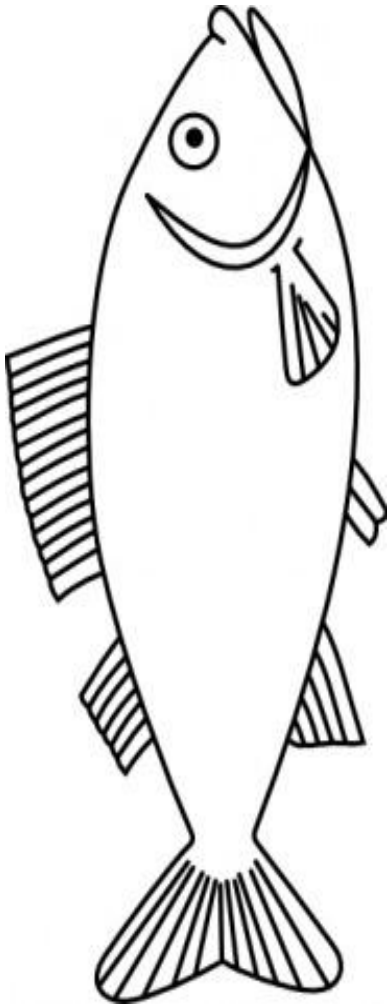
General Structure of a Research Article



- **Title**
- **Abstract**
- **Keywords**

Make it easy for indexing and searching
(informative, attractive, effective)

- **Main text**
  - Introduction
  - Methods
  - Results
  - Discussion

- **Conclusion**
- **Acknowledgements**
- **References**
- **Supplementary Data**

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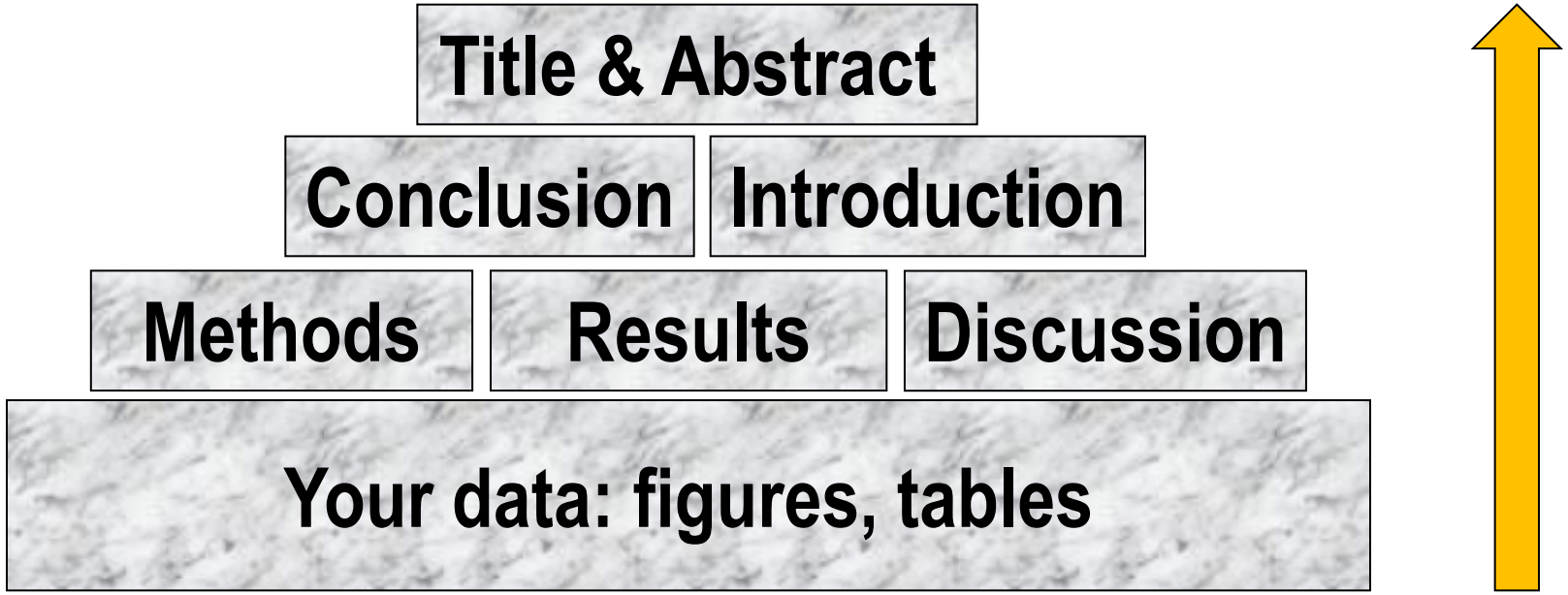
The process of writing – building the article



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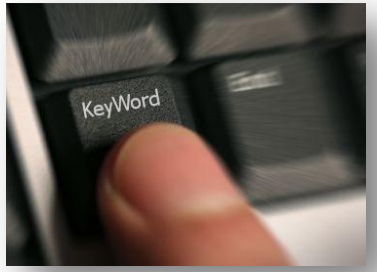
Title

A good title should contain the **fewest** possible words that **adequately** describe the contents of a paper.

Articles with short, catchy titles are better cited

Keywords

In an electronic world, keywords determine whether your article is found or not!



Avoid making them

- too general (“drug delivery”, “mouse”, “disease”, etc.)
- too narrow (so that nobody will ever search for it)

TIPS:

- Look at the keywords of articles relevant to your mss
- Play with these keywords, and see whether they return relevant papers, neither too many nor too few
- Search for your keywords online: would readers find YOUR article using them?

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Abstract

Tell readers what you did and the important findings

- Advertisement for your article
- One paragraph (50-250 words) often
- Be accurate and specific
- A clear abstract will strongly influence if your work is considered further

Graphite intercalation compounds (GICs) of composition CxN(SO2CF3)2 · δF are prepared under ambient conditions in 48% hydrofluoric acid, using K2MnF6 as an oxidizing reagent. The stage 2 GIC product structures are determined using powder XRD and modeled by fitting one dimensional electron density profiles.

What has been done

A new digestion method followed by selective fluoride electrode elemental analyses allows the determination of free fluoride within products. The compositional x and δ parameters are determined for reaction times from 0.25 to 500 h.

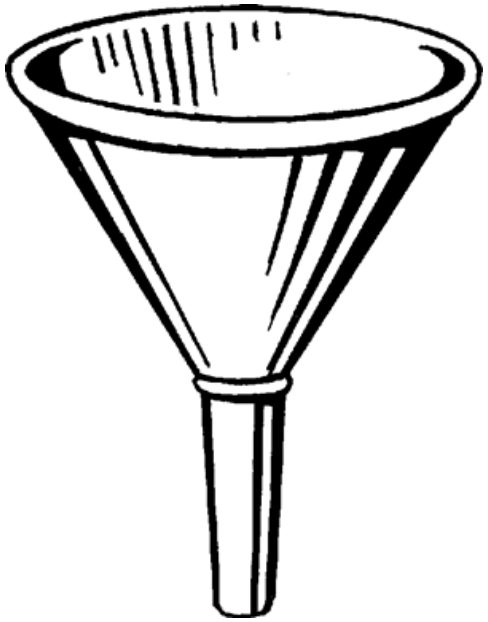
What are the main findings

Introduction – Puts your data into perspective

The place to convince readers that you know why your work is relevant, also for them

Answer a series of questions:

- What is the problem?
- Are there any existing solutions?
- Which one is the best?
- What is its main limitation?
- How do you hope to improve or contribute to this?



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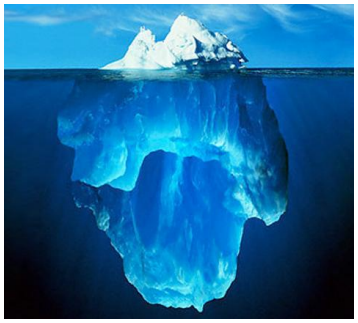
Methods / Experimental section

- **Include all important details so that the reader can repeat the work:**
  - Details that were previously published can be omitted but a general summary of those experiments should be included
- **Give vendor names (and addresses) of equipment used, etc.**
- **All chemicals must be identified:**
  - Do not use proprietary, unidentifiable compounds without description
- **Present proper control experiments.**
- **Avoid adding comments and discussion.**
- **Consider use of Supplementary Materials:**
  - Documents, spreadsheets, audio, video, ...

Results – what have you found?

Driving force of the publication:

Tell a clear and easy-to-understand story



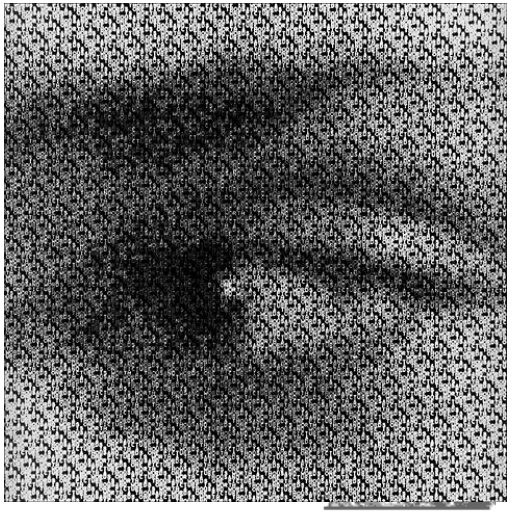
The following should be included:

- the **main findings**
  - Thus not *all* findings
  - Findings from experiments described in the Methods section
- Highlight findings that **differ** from findings in previous publications, and **unexpected** findings
- Results of the **statistical analysis**

Results – Figures and tables

Illustrations are critical, because

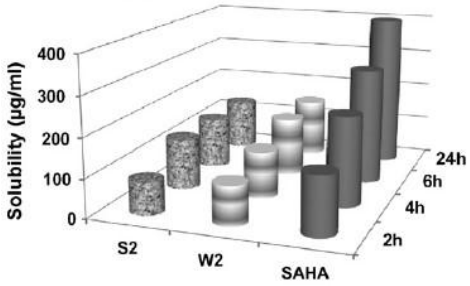
- Figures and tables are the most efficient way to present results
- Captions and legends must be detailed enough to make figures and tables self-explanatory
- No duplication of results described in text or other illustrations

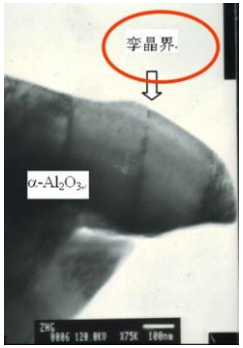


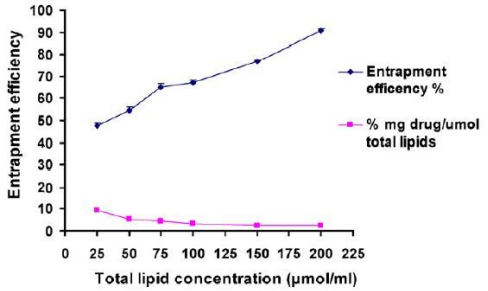
"One Picture is Worth a Thousand Words"
Sue Hanauer (1968)

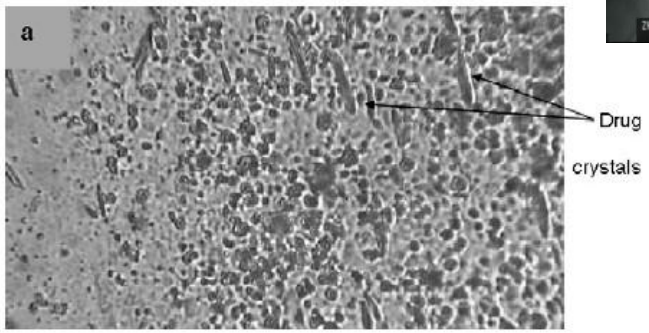
Figures and tables – Appearance counts!

- Un-crowded plots
  - 3 or 4 data sets per figure; well-selected scales; appropriate axis label size; symbols clear to read; data sets easily distinguishable.
- Text in photos / figures in English
- Each photograph must have a scale marker of professional quality in a corner.
- Use color *ONLY* when necessary. Color must be visible and distinguishable when printed in black & white.
- Do not include long boring tables!









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Discussion – what do the results mean?

- **Here you get the chance to SELL your data!**
  - Many manuscripts are rejected because the Discussion is weak

- **Check for the following:**
  - How do your results relate to the original question or objectives outlined in the Introduction section?
  - Do you provide interpretation for each of your results presented?
  - Are your results consistent with what other investigators have reported? Or are there any differences? Why?
  - Are there any limitations?
  - Does the discussion logically lead to your conclusion?

- **Do not:**
  - Make statements that go beyond what the results can support
  - Suddenly introduce new terms or ideas

Conclusions

- Do not summarize the paper
  - The abstract is for that purpose
- Present what have you shown and what it means for the field
- Suggest future experiments and indicate whether they are underway
- Avoid bold judgments about impact

References: get them right!

- **Cite the main scientific publications on which your work is based**

- **Check**
  - Referencing style of the journal (Guide for Authors)
  - The spelling of author names, the year of publication
  - Punctuation use

Cover L

Your c

- Submitt
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  conflicts

Professor H. D. Schmidt
School of Science and Engineering
Northeast State University
College Park, MI 10000
USA

January 1, 2008

Dear Professor Schmidt,

Enclosed with this letter you will find en electronic submission of a manus
entitled "Mechano-sorptive creep under compressive loading – a microme
model" by John Smith and myself. This is an original paper which h neither
previously nor simultaneously in whole or in part been submitted anywhere else.
Both authors have read and approved the final version submitted.

Mechano-sorptive is sometimes denoted as accelerated creep. It has been experimentally observed that the creep of paper accelerates if it is subjected to a cyclic moisture content. This is of large practical importance for the paper industry. The present manuscript describes a micromechanical model on the fibre network level that is able to capture the experimentally observed behaviour. In particular, the difference between mechano-sorptive creep in tension and compression is analysed. John Smith is a PhD-student who within a year will present his doctoral thesis. Th present paper will be a part of that thesis.

Three potential independent reviewers who have excellent expertise in the
this paper are:

Dr. Fernandez, Tennessee Tech, email1@university.com
Dr. Chen, University of Maine, email2@university.com
Dr. Singh, Colorado School of Mines, email3@university.com

I would very much appreciate if you would consider the manuscript for publication in the *International Journal of Science*.

ly yours,

A. Professor

Final approval from all authors

Explanation of importance of research

Suggested reviewers

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Suggest potential reviewers

- Usually **3-6** (see Guide for Authors)
- Authors in your subject area (see your references)
- International
- **NOT** collaborators or friends

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How to Write and publish a Good Research Paper

The review and editorial process

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Initial Editorial Review or Desk Reject

Many journals use a system of initial editorial review. Editors may reject a manuscript without sending it for review

Why?

- It is a disservice to ask reviewers to spend time on work that clearly does not fit that particular journal or that has evident deficiencies.

- The peer-review system is grossly overloaded and editors wish to use reviewers only for those papers with a good probability of acceptance.

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First Decision: “Accepted” or “Rejected”

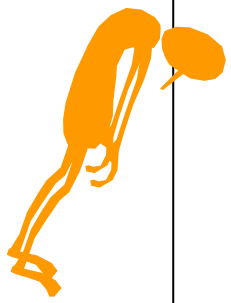
Accepted

- **Very rare, but it happens**

- **Congratulations!**
  - Cake for the department
  - Now wait for page proofs and then for your article to be online and in print

Rejected / Revision

- **Probability 40-90% rejected ...**
- **Do not despair** - It happens to everybody
- **Try to understand WHY**
  - Consider reviewers’ advice
  - Be self-critical
- **If you re-submit to same journal**
  - Respond to reviewer's and editor’s comments
  - Regard it as a new manuscript
- **If you submit to another journal**
  - Take advantage of the reviewers’ comments (they may review your paper for the other journal too!)
  - Read the Guide for Authors of the new journal, again and again.



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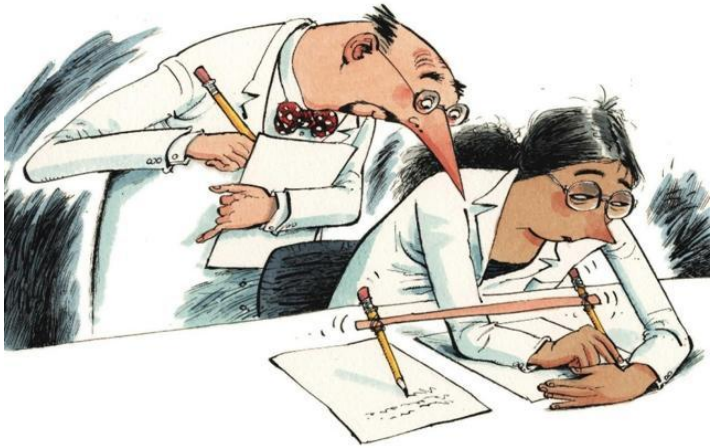
Publication Ethics

Publish *AND* Perish! – if you break ethics rules

- **International** scientific ethics has evolved over centuries, and are commonly held throughout the world.

- Scientific ethics is not considered to have national variants or characteristics
  - there is a ***single ethics standard*** for science.



M. Errami & H. Garner
A tale of two citations
Nature 451 (2008): 397-399

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Ethics Issues in Publishing

Scientific misconduct

- **Falsification** of results
- Data **fabrication**

Publication misconduct

- **(Self-)Plagiarism**
  - Different forms/ severities
  - The paper must be original to the authors
- Inappropriate identification of co-authors
- Duplicate submission
- Duplicate publication
- Inappropriate acknowledgement of prior research and researchers
- Conflict of interest

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Authorship

Corresponding Author	Co-authors	Acknowledgment
• Often a senior author • The contact person for the publisher, and future readers • Ensures that all appropriate co-authors and no inappropriate co-authors are included on the paper • Ensures that **all co-authors have agreed** to the manuscript and its publication	All those that have made a **significant contribution** to the **conception, design, execution**, or **interpretation** of the reported study *(International Committee of Medical Journal Editors – ICMJE)*	Others who have participated in certain substantive aspects of the research project.

- **All authors** need to approve the final version and agree to its submission for publication
- All co-authors sign on to take responsibility and credit for the **entire** manuscript
- **Changes to authorship** after submission are strongly discouraged

Authorship – Abuses to avoid

Abuses to be avoided:

- Ghost Authorship: leaving out authors who should be included
- Gift Authorship: including authors who did not contribute significantly

Acknowledgements:

Recognize those who helped in the research but do not qualify as authors (you want them to help you again, don't you?):

Advisors
Financial supporters
Proofreaders
Typists
Suppliers who may have given materials

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Manuscript

Fatigue and fracture properties of nano-composites under cyclic bending loadings

Mohammad Azadi*

Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

*Corresponding author, Email address: m_azadi@semnan.ac.ir

Abstract:

In this article, …

Keywords: Fatigue; Nano-composite; Cyclic loading

Introduction

Nano-composites have been widely used in aerospace industries.

Verma et al. [1] estimated the fatigue lifetime of epoxy-alumina nanocomposites. They prepared nano-composite samples included 0.5, 1 and 1.5 wt % of alumina nano-particles. They found a proper dispersion of nano-particles in the epoxy matrix. Their results of tensile fatigue testing at R=0.1, showed an increase in the fatigue lifetime of nanocomposites, with 1.5% alumina particles.

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Based on the literature review, it could be concluded that

- Most articles are about mechanical properties of nano-composites.
- …

Therefore, the novelty of this research could be investigating a special nano-particle on fatigue properties of aluminum alloy.

In this research, …

Materials and Experiments

1) Sample preparation

2) Finite element modeling

3) Testing

Studied material in this article is an aluminum alloy, which has been widely used in automotive engineering.

Results and Discussion

1) Microstructure investigations

2) Fatigue properties

3) Fracture analysis

Conclusions

In this research, fatigue properties of nano-composites were characterized by experiments. Obtained results could be listed as follows,

- …

Acknowledgement

Authors would like to thank Irankhodro Powertrain Company.

Conflict of Interest

Authors have declared that there is no conflict of interests for this research.

CRediT (Contributor Roles Taxonomy) or Author Contributions

Hanieh Aroo: Software/ Formal analysis/ Investigation/ Resources/ Data Curation/ Writing - Original Draft / ***Mohammad Azadi:*** Conceptualization/ Methodology/ Validation/ Investigation/ Resources/ Writing - Review & Editing/ Visualization/ Supervision/ Project administration/ Funding acquisition

Data Availability

The data that support the findings of this study are available based on the request from the corresponding author. The experimental data are not publicly available due to restrictions and the privacy of research participants.

References

[1] V. Verma, D.K. Shukla, V. Kumar, et al., Estimation of fatigue life of epoxy-alumina polymer nano-composites, Procedia Materials Science, 5 (2014) 669-678

[2] V. Verma, D.K. Shukla, V. Kumar, Estimation of fatigue life of epoxy-alumina polymer nano-composites, Procedia Materials Science, 5 (2014) 6696

[3]

Note: Do not use "et al." in the reference part.

Biography

Mohammad Azadi was born in Shiraz, Iran in 1983. He received B.Sc. and M.Sc. degrees in mechanical engineering from Shiraz University, Shiraz, Iran and K.N. Toosi University of Technology, Tehran, Iran, respectively, in 2006 and 2008; and then, the Ph.D. degree in mechanical engineering from Sharif University of Technology, Tehran, Iran, in 2013. During his Ph.D., he has awarded an exchange program by the Ministry of Science, Research and Technology and also Irankhodro Powertrain Company, in order to perform a fatigue testing project in University of Leoben, Leoben, Austria, 2012.

From 2008 to 2015, he has worked in Irankhodro Powertrain Company, Tehran, Iran and for last two years, he was a project manager of a national turbo-charged engine. Since 2015, he has been an Assistant Professor in the Faculty of Mechanical Engineering, Semnan University, Semnan, Iran. He is the author of two chapter-books, two conference proceedings, more than 70 journal articles, about 100 conference papers and 7 patents. He has been also funded to perform 8 research projects by Iranian universities and industries; and also, one international project, entitled "Iran-Austria Impulse". He is an advisory board of International Journal of Engineering and also a reviewer in different ISI journals. His research interests include solid mechanics, fatigue, fracture and creep, numerical methods, surface engineering, materials characterization, design of experiments, with the application of engine, aerospace and automotive industries, besides biomechanics.

Conflict of Interest

Dear Editor-in-Chief,

For our article, entitled "***The temperature effect on creep and fracture behaviors of aluminum matrix nano-SiO_2-composite, comparing to AlSi12Cu3Ni2MgFe aluminum alloy***", which has been submitted to your journal for reviewing, there is no conflict of interest.

Regards,

M. Azadi, PhD.
Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

Cover Letter with Novelty

Dear Editor-in-Chief,

Our article, entitled "***The temperature effect on creep and fracture behaviors of aluminum matrix nano-SiO_2-composite, comparing to AlSi12Cu3Ni2MgFe aluminum alloy***", has been submitted to your journal for reviewing. First of all, thank you for such job on our article. Then, all authors have agreed to submit this manuscript.

It should be noted that our article is an original work, which has not been submitted or will not submit elsewhere; neither journals nor conferences, besides an agreement of all authors.

The novelty of this article could be mentioned as follows,

- Based on the literature review in the article, researches about creep properties of aluminum matrix nano-composites are still rare. However, articles about other material properties of nano-composites have been published more and more. Therefore, as the novelty of this article, the high-temperature creep behavior in the aluminum matrix SiO_2 nano-composite has been characterized. Besides, studies about the used piston aluminum alloy (AlSi12Cu3Ni2MgFe) plus the selected nano-particle (SiO_2) are rare, comparing to other aluminum alloys and other nano-particles. Authors could not find the exact material in published articles, where investigated creep properties. Another interesting result was a significant increase in the creep lifetime of the introduced nano-composite.

Regards,

M. Azadi, PhD.

Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

Cover Letter

Dear Editor-in-Chief,

Our article, entitled "***The temperature effect on creep and fracture behaviors of aluminum matrix nano-SiO_2-composite, comparing to AlSi12Cu3Ni2MgFe aluminum alloy***", has been submitted to your journal for reviewing. First of all, thank you for such job on our article. Then, it should be noted that our article is an original work, which has not been submitted or will not submit elsewhere; neither journals nor conferences, besides an agreement of all authors.

It should be noted that all authors have made substantial contributions to (a) the conception and the design of this study, the acquisition of experimental data, the analysis and the interpretation of data; (b) drafting the article and will cooperate in revising the article critically for important intellectual contents; (c) the final approval of the article version, which is submitted.

Regards,

M. Azadi, PhD.

Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

Declaration of Interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

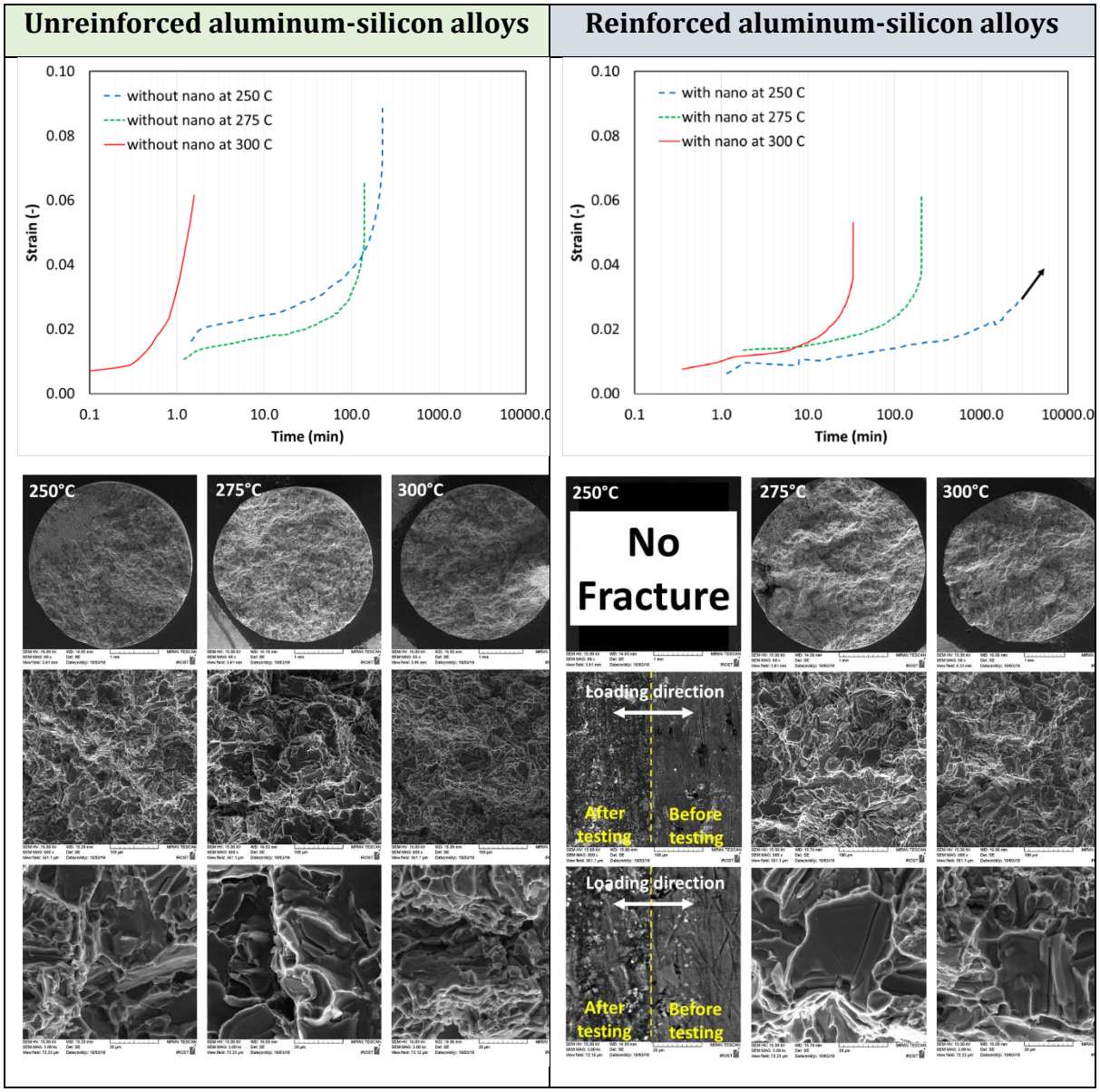
☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

There is no conflict of interest for this research on behalf of all authors.
Then also for USA sanctions, we have declared that

1) All three authors are from academic (research and education) institutes. Moreover, authors have confirmed 2(b)(i) and 2(b)(ii) parts on the OFAC compliance.

Therefore, none of authors, how are submitting this manuscript, are as an official representative or on behalf of the government.

Graphical Abstract



Highlights

Highlights

- Temperature was significantly affected creep properties of as-cast and reinforced aluminum alloys.
- An effectively improvement was obtained by adding SiO_2 nano-particles and heat treatment.
- Fracture surfaces of both materials indicated same brittle behaviors.
- Creep lifetimes of nano-composites increased, comparing to that of aluminum alloys.
- Failure locations changed from inside intermetallic phases into boundaries in nano-composites.

Answers to Comments

Dear Editor-in-Chief,

First of all, we should thank you and your respected reviewers for reviewing our article, entitled "***Temperature effect on creep and fracture behaviors of nano-SiO2-composite and AlSi12Cu3Ni2MgFe aluminum alloy***". Then, we have tried our best to address all comments in the revised article. All changes were highlighted in yellow-colored sentences. Besides, answers to all comments could be seen in following paragraphs.

Regards,

M. Azadi, PhD.

Faculty of Mechanical Engineering, Semnan University, Semnan, Iran

Reviewer 1:

In this research, the temperature effect on creep and fracture behaviors of aluminum matrix nano-SiO2-composite, comparing to AlSi12Cu3Ni2MgFe aluminum alloy investigated. The method used in this study is interesting and has valuable results. Introduction of the article is very interesting and carefully prepared. The present work is also valuable and well presented.

Answer: We thank the respected reviewer for his/her beneficial comments. We have addressed all comments in the revised article.

1) In Fig. 3a, for the time-dependent creep strain graph, logically differentiate the curve at 300°C from the other two temperatures.

Answer: The respected reviewer is correct. The reason for such a behavior was the creep lifetime at 300°C, which was too short (1.6 min and 33.4 min for specimens, without and with nano-particles). To address this comment, the following paragraph was added to the revised article.

> *As another note, for data at 300°C, curves of the strain and also the strain rate were logically differentiated from curves for two other temperatures. The reason for such a behavior was the creep lifetime at 300°C, which was too short (1.6 min and 33.4 min for specimens, without and with nano-particles), comparing to other creep lifetimes at two other temperatures.*